

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A film recorder An apparatus for registering images from a source digital display device to individual frames of continuous movie film media with resolution and contrast greater than an inherent capability of a source of display, comprising:

a film recording device configured to selectively and repeatedly expose individual frames of said film media;

[[a]] an electronically addressable flat panel display device configured to display a plurality of static images sequentially, a sequence of said static images comprising a frame; and

an alignment unit coupled to the film recording device and to the display device, wherein the alignment unit is configured to position the flat panel display device with respect to the film recording device such that the film recording device can expose the film media to the plurality of static images in order to minimize optical aberrations at said film media,

said flat panel display and said alignment unit cooperating to expose said individual frames of said film recording device so as to register final image features not presented by a single image of said flat panel display, including colors and contrast levels, that cannot be presented by said flat panel display.

2. (Currently amended) The film recorder apparatus of claim 1, wherein the flat panel display device is one of the group: liquid crystal display (LCD), organic light emitting diode (OLED) display, plasma display, electro luminescent (EL) display, silicon crystal display, liquid crystal display on silicon (LCOS) and wherein the flat panel display is an array having at least 3480 x 2400 pixels.

3. (Currently amended) The film-recorder apparatus of claim 1, wherein the alignment unit comprises a distance adjustment unit configured to adjust a distance from the film recording device to the display device for changing effective resolution.

4. (Currently amended) The film-recorder apparatus of claim 3, further comprising:

a control unit coupled to the distance adjustment unit, wherein the control unit is configured to control the adjustment unit to adjust the distance from the film recording device to the display device for changing effective resolution.

5. (Currently amended) The film-recorder apparatus of claim 1, wherein the alignment unit further comprises an X-Y-Z gimbal coupled to the flat panel display device, wherein the X-Y-Z gimbal is configured to adjust an orientation of the flat panel display with respect to the film recording device to compensate for said optical aberrations due to off-axis alignment between said film media and said flat panel display.

6. (Currently amended) The film-recorder apparatus of claim 1, wherein the film recording device is one of the group: 16mm film camera, 35mm film camera, 70 mm film camera.

7. (Canceled) The film recorder of claim 1, wherein the film recording device is oriented with respect to the flat panel display device such that the optical path from the flat panel display device to the film recording device is substantially vertical.

8. (Currently amended) The film-recorder apparatus of claim 1 further comprising an illumination source disposed relative to said flat panel display on a side opposite side from said film recording device and coupled to the flat panel display device configured to increase output brightness of at least a portion of the display of the plurality of images and to illuminate said flat panel display with back light for reproduction of said final image by said film recording device.

9. (Currently amended) The ~~film recorder apparatus~~ of claim 8, wherein the illumination source is one of the group: light emitting diode, light emitting diode array, strobe lamp, strobe lamp array, digital light projector.

10. (Currently amended) The ~~film recorder apparatus~~ of claim 8 wherein the illumination source provides different color illumination to different portions of the flat panel display device.

11. (Currently amended) The ~~film recorder apparatus~~ of claim 8 wherein the illumination source comprises red LEDs, blue LEDs, and green LEDs, and

wherein the red LEDs are configured to produce a peak wavelength selected from the group: 650nm, 630nm;

wherein the ~~blue~~ green LEDs are configured to produce a peak wavelength selected from the group: 550nm, 530nm; and

wherein the ~~green blue~~ LEDs are configured to produce a peak wavelength selected from the group: 450nm, 445nm.

12. (Currently amended) A method of recording images onto film media, the method comprising ~~comprises~~:

positioning an optical axis of a display portion of [[a]] an electronically addressable flat panel display to be approximately parallel to an optical axis of a film recording unit;

displaying [[an]] a first image on the display portion of the flat panel display for a first duration; and

exposing a first frame of the film media to the first image on the display portion for a second duration;

displaying a second image on the display portion of the flat panel display for a third duration; and

exposing said first frame of the film media to the second image on the display portion for a fourth duration;

repeating said displaying and exposing steps to register final image features not presented by a single displayed image, including colors and contrast levels, that cannot be generated by said flat panel display.

13. (Currently amended) The method of claim 12, further comprising adjusting a focal length of a lens of the film recording device in response to a distance from the flat panel display to the film recording device and in response to a size of the display area and repositioning the optical axis of the display portion of the flat panel display to compensate for off-axis aberration.

14. (Currently amended) The method of claim 12, further comprising adjusting the second duration in response to the image to control said final image features.

15. (Original) The method of claim 12 wherein the flat panel display is one of the group: digital flat panel display, analog flat panel display.

16. (Currently amended) The method of claim 12, wherein the flat panel display is a display from the group: LCD, OLED display, plasma display, EL display, silicon crystal display, LCOS display and wherein the flat panel display is an array having at least 3480 x 2400 pixels.

17. (Currently amended) The method of claim 12 further comprising providing external illumination from an external illumination source to the flat panel display; wherein the external illumination source is one of the group: LED, LED array, strobe lamp, strobe lamp array, digital light projector configured to illuminate said flat panel display with back light for registering said final image features by said film recording device.

18. (Currently amended) The method of claim 17 wherein the external illumination source comprises at least one or more digital light projector configured to display images in RGB and CMY color space.

19. (Currently amended) The method of claim 17 wherein the external illumination increases the brightness of at least a portion of the flat panel display for registering said final image features in the film media.

20. (Currently amended) The method of claim 17 wherein a resolution of the flat panel display is different from a resolution of the external illumination source and further including the step of spatially dithering to register said final image features.

21. (Original) The method of claim 20 wherein the external illumination source provides a first illumination color to a first portion of the display portion and provides a second illumination color to a second portion of the display portion at the same time.

22. (Canceled) The method of claim 12 wherein exposing the film media to the image comprises:

directing a shutter of the film recording unit to open; and
directing the shutter of the film recording unit to shut.

23. (Original) The film media including the image exposed according to the method of claim 12.

24. (Currently amended) A method for forming a recorded film media comprises comprising:

displaying a plurality of static images sequentially on a digital flat panel display to be recorded onto a single frame of unexposed film media;

aligning an optical axis of a film recorder to be substantially parallel to an optical axis of the digital flat panel display;

controlling a shutter of the film recorder to expose [[a]] the single frame of the unexposed film media with at least more than one image from the plurality of images to register final image features on the film media not able to be presented by a single displayed image.

25. (Canceled) ~~The method of claim 24 wherein the frame of the unexposed film media is exposed with more than one image from the plurality of images.~~

26. (Original) The method of claim 24 wherein spatial dithering techniques are used for images from the plurality of images.

27. (Original) The method of claim 24 wherein the digital flat panel display is selected from the group: LCD, OLED, plasma, EL, silicon crystal display, LCOS display.

28. (Canceled) ~~The method of claim 24, wherein controlling the shutter of the film recorder comprises adjusting how long the shutter is open in response to the one image.~~

29. (Currently amended) The method of claim 24 further comprising illuminating the flat panel display with an external illumination source disposed to provide backlight, wherein the external illumination source is an illumination source from the group: white LED, colored LED, LED array, strobe lamp, array of strobe lamps, digital light projector.

30. (Canceled) ~~The method of claim 29 wherein the digital flat panel display is positioned between the external illumination source and the film recorder.~~

31. (Currently amended) The method of claim 24 further comprising: illuminating the flat panel display with an external illumination source disposed to provide backlight,

wherein the external illumination source is an addressable source, such that the external illumination source illuminates different portions of the flat panel display with different illumination colors.

32. (Original) The method of claim 31 wherein the external illumination source also illuminates different portions of the flat panel display with different intensities.

33. (Original) The method of claim 29 wherein the external illumination source comprises light guides.

34. (Canceled) ~~The method of claim 24 further comprising:~~
~~determining a number of frames to record for the recorded film media; and~~
~~charging a user based upon the number of frames.~~

35. (Original) The method of claim 24 further comprising printing an interpositive from the recorded film media.